

**00503**

**1980/02/05**

PROTOCOL BETWEEN  
THE ENVIRONMENTAL PROTECTION AGENCY OF THE  
UNITED STATES OF AMERICA  
AND  
THE OFFICE OF THE ENVIRONMENTAL PROTECTION  
LEADING GROUP OF THE STATE COUNCIL OF THE  
PEOPLE'S REPUBLIC OF CHINA  
FOR SCIENTIFIC AND TECHNICAL COOPERATION IN  
THE FIELD OF ENVIRONMENTAL PROTECTION

The Environmental Protection Agency of the United States of America and the Office of the Environmental Protection Leading Group of the State Council of the People's Republic of China (hereinafter referred to as the Parties), in accordance with and subject to the Agreement Between the Government of the United States of America and the Government of the People's Republic of China on Cooperation in Science and Technology, signed in Washington, D.C., on January 31, 1979, and in order to promote scientific and technical cooperation and collaboration in the field of environmental protection, have agreed as follows:

Article 1

The Parties agree to conduct exchanges and cooperative activities on the basis of equality, reciprocity, and mutual benefit.

## Article 2

The Parties agree to cooperate with each other in the field of the science and technology of environmental protection. Cooperative activities may be undertaken in such fields as air pollution, water pollution, soil pollution, marine pollution, effects of environmental protection on human health and ecological systems, improvement to urban environment, preservation of nature, environmental legislation, environmental management, environmental economics and other areas of mutual interest.

## Article 3

The Parties agree that cooperation under this Protocol may include the following forms:

1. Exchange of scientists, scholars, specialists and delegations;
2. Exchange and provision of scientific and technical information in the field of environmental protection;
3. Cooperative research on subjects of mutual interest;
4. Joint organization of symposia, seminars, lectures and training courses;
5. Exchange and provision of samples, reagents, materials, data, instruments and components for testing, evaluation and other purposes;
6. Such other forms of cooperation as are mutually agreed.

#### Article 4

The Parties shall encourage and facilitate the development of contacts and cooperation between government agencies, research institutions, industrial enterprises, universities and other entities concerned with cooperative activities and coordinate the implementation of these activities.

The Environmental Protection Agency of the United States of America shall coordinate the cooperative activities under this Protocol of the participating agencies on the United States side, and the Office of the Environmental Protection Leading Group of the State Council of the People's Republic of China shall coordinate the cooperative activities under this Protocol of the participating agencies on the Chinese side.

#### Article 5

The cooperative activities carried out under this Protocol will be subject to the funds and manpower available to the Parties.

The specific tasks, obligations and conditions, with respect to the above-mentioned activities, including the responsibility for the payment of costs, shall be decided by mutual agreement on a case-by-case basis.

All written material and information, reference standards, reagents and samples necessary for the implementation of cooperative activities shall normally be exchanged at no charge except as may be otherwise agreed.

#### Article 6

In order to coordinate the activities under this Protocol, a Working Group of the Parties shall be established. Each Party will designate three persons to be members of the Working Group, one of whom will act as co-chairperson. The co-chairperson designated by each Party may, by correspondence, decide upon the adoption, coordination and implementation of cooperative activities and on other relevant matters. When necessary, the co-chairpersons, by mutual agreement, may call meetings of the Working Group on an irregular basis to consider matters related to the implementation of this Protocol.

#### Article 7

The specific activities and the terms under which they will be conducted, as mutually agreed, including financial arrangements, shall be embodied in Annexes to this Protocol. New cooperative programs will be confirmed by correspondence between the two co-chairpersons, and such new agreements will be attached as Annexes to this Protocol.

#### Article 8

Scientific and technical information derived from cooperative activities under this Protocol may be made available, unless otherwise agreed upon in an Annex to this Protocol, to the world scientific community through

customary channels and in accordance with the normal procedures of the Parties.

#### Article 9

All activities under this Protocol shall be conducted under the guidance of the US/PRC Joint Commission on Scientific and Technological Cooperation, established pursuant to the aforementioned Science and Technology Agreement.

#### Article 10

1. This Protocol shall enter into force upon signature, and shall remain in force for a five-year period. It may be amended or extended by mutual agreement of the Parties.

2. The termination of this Protocol shall not affect the validity or duration of specific activities being undertaken hereunder.

Done at Beijing this fifth day of February 1980, in duplicate in the English and Chinese languages, both equally authentic.

For the Environmental  
Protection Agency of  
the United States of America

For the Office of the  
Environmental Protection  
Leading Group of the  
State Council of the  
People's Republic of China

The block contains two handwritten signatures. On the left is a signature in cursive script, likely representing the US representative. On the right is a signature in Chinese characters, likely representing the PRC representative.

PROTOCOL BETWEEN THE UNITED STATES ENVIRONMENTAL PROTECTION AGENCY AND  
THE OFFICE OF THE ENVIRONMENTAL PROTECTION LEADING GROUP OF THE STATE  
COUNCIL OF THE PEOPLE'S REPUBLIC OF CHINA FOR SCIENTIFIC AND TECHNICAL  
COOPERATION IN THE FIELD OF ENVIRONMENTAL PROTECTION

ANNEX 1

ENVIRONMENTAL HEALTH RESEARCH

I. GENERAL

This Annex presents selected study areas for cooperative research on environmental health research. A detailed joint proposal for each specific project will be approved by the working group. Joint proposals for each project will be prepared by the performing institution and/or scientists and their corresponding counterpart. The selected study areas below do not exclude other cooperative activities or projects which might be deemed desirable by the parties for inclusion under this Protocol.

II. ITEMS FOR COOPERATION

A. The influence of air pollution from coal combustion on the morbidity of lung cancer and upper respiratory tract:

1. Identify the metabolites of polycyclic aromatic hydrocarbon (such as benzo-a-pyrene) in animals and humans exposed in situ to coal smoke at selected site in China.

a. The U.S. side will send an analytical chemist to work at the Institute of Hygiene, Chinese Academy of Medical Sciences, on or about May 1981 for two months. The U.S. side will pay the international travel costs and China will pay for the expenses (of board, lodging, transportation and emergency medical services) incurred by the U.S. experts while they are in China, as allowed by Chinese laws and regulations.

b. The Chinese side will send an analytical chemist to work in a designated U.S. institution on or about January 1981 for two months to study the standardized monitoring methods of air pollution, particularly in the establishment of the analytical methods of fine particulates. The Chinese side will pay the international travel costs and the U.S. will pay for expenses (such as travel, lodging, board and emergency medical costs) incurred by the Chinese experts while they are in the United States, as allowed by U.S. laws and regulations.

2. The Chinese side will measure indoor and outdoor levels of pollutants in the coal combustion area, including polycyclic aromatic hydrocarbons (such as benzo-a-pyrene), heavy metals, sulfur dioxides,  $H_2SO_4$  aerosol and fine particles.

The U.S. side will provide the standard reference materials, where appropriate to the study objectives and availability.

3. Studies on acute and chronic inhalation toxicity and carcinogenesis, teratogenesis, and mutagenesis on animals with coal smoke extracts.

a. The U.S. side will send a toxicologist to work in The Institute of Hygiene, Chinese Academy of Medical Sciences on or about May 1981 for two months. The U.S. side will pay the international travel costs and China will pay for the expenses (of board, lodging, transportation and emergency medical services) incurred by the U.S. experts while they are in China, as allowed by Chinese laws and regulations.

b. The Chinese side will send a toxicologist to a designated institution on or about October 1980 for two months to study the current techniques for the rapid identification of carcinogens and mutagens, and



the experimental procedures of the inhalation tests. The Chinese side will pay the international travel costs and the U.S. will pay for expenses (such as travel, lodging, board and emergency medical costs) incurred by the Chinese experts while they are in the United States, as allowed by U.S. laws and regulations.

4. A heavily polluted area caused by coal combustion in China will be selected for study in the area of environmental epidemiology on lung cancer, the rate of occurring incidence, and mortality of lung cancer and upper respiratory diseases.

a. The U.S. side will send an epidemiologist to work in the Institute of Hygiene, Chinese Academy of Medical Sciences, on or about May 1981 for one month. Papers relevant to the special pollutants and reagents used in the epidemiological investigation will be brought over. The U.S. side will pay the international travel costs and China will pay for the expenses (of board, lodging, transportation and emergency medical services) incurred by the U.S. experts while they are in China, as allowed by the Chinese laws and regulations.

b. The Chinese side will send an epidemiologist to work in a designated institution on or about December 1980 for one month to exchange experiences in epidemiological methods, statistical methods, and methods for detecting specified pollutants. The Chinese side will pay the international travel costs and the U.S. will pay for expenses (such as travel, lodging, board and emergency medical costs) incurred by the Chinese experts while they are in the United States, as allowed by U.S. laws and regulations.

B. Health effects of drinking water contamination:

1. Conduct monitoring, conduct data collection, and determine trace element and organic compound concentrations in drinking water in some cities of China:

a. The U.S. side will send a water quality analysis expert to work at the Institute of Hygiene, Chinese Academy of Medical Sciences. The U.S. side will pay the international travel costs and China will pay for the expenses (of board, lodging, transportation and emergency medical services) incurred by the U.S. experts while they are in China, as allowed by the Chinese laws and regulations.

b. The Chinese side will send a water quality analysis expert to work in the designated institution on or about August 1980 for two months to learn water analytical methods, especially the analysis of trace organic chemicals in water. The Chinese side will pay the international travel costs and the U.S. will pay for expenses (such as transportation, lodging, board and emergency medical costs) incurred by the Chinese experts while they are in the United States, as allowed by U.S. laws and regulations.

2. Both sides will engage in joint projects to develop certain population studies in both countries that could show correlations between occurrence of cardiovascular and other diseases due to drinking water contamination with organic chemicals and metals. This project will begin in 1981 with the development of an investigation plan by specialists of the two sides.

C. Biological accumulation of environmental pollutants:

1. Both sides will conduct joint studies to develop methods for analysis of pollutants in animal and human samples, especially the methods for mercury, lead, cadmium, and chlorinated hydrocarbons pesticide residues:

a. The U.S. side will send an expert to work at the Institute of Hygiene, Chinese Academy of Medical Sciences, on or about April 1981 for two months. The U.S. side will pay the international travel costs and China will pay for the expenses (of board, lodging, transportation and emergency medical services) incurred by the U.S. experts while they are in China, as allowed by the Chinese laws and regulations.

b. The Chinese side will send an expert to work in a designated institution on or about February 1981 for two months to exchange experiences in the analytical methods of heavy metals and organic chlorinated pesticides in biological media. The Chinese side will pay the international travel costs and the U.S. will pay for expenses (such as travel, lodging, board and emergency medical costs) incurred by the Chinese experts while they are in the United States, as allowed by U.S. laws and regulations.

c. The U.S. side will provide standard reference materials for the analysis of pollutants in humans and animals where appropriate to the study objectives and availability.

2. Joint studies to predict the degree of absorption, distribution, and accumulation of pollutants in human, animal, and plant tissues, and also the background value of pollutants in the human body in some areas:

a. Both sides participate in the project planning, including the analytical methods, sampling methods, pollutant selection. The study is to be conducted in both countries and the achievements will be exchanged.

b. These studies could be assisted by data that the U.S. side has collected in the specimen bank at the Oak Ridge National Laboratory and at the U.S. Environmental Protection Agency-National Bureau of Standards Joint Specimen Bank.

c. These projects will be started in 1981.

### III. GENERAL PROVISION

A. A U.S. team of scientists will visit China in October 1980 to explore and define the proposed studies in detail and identify institutes appropriate for the assignment of U.S. scientists. The U.S. side will pay the international travel costs and China will pay for the expenses (such as transportation, lodging, board and emergency medical costs) incurred by the U.S. experts while they are in China, as allowed by the Chinese laws and regulations. A Chinese team of scientists will visit the U.S. in 1981 to further define proposed studies and identify institutes appropriate for the assignment of Chinese scientists. The Chinese side will pay the international travel costs and the U.S. will pay for expenses (such as travel, lodging, board and emergency medical costs) incurred by the Chinese experts, while they are in the United States, as allowed by U.S. laws and regulations. The delegations of scientists from each country will be of equal size and duration.

B. The investigation plan will be negotiated by specialist groups from both sides who would identify the appropriate equipment for the research study. Cooperative research in China will begin with the

equipment and facilities provided mainly by the Chinese side. The U.S. side will actively consider providing appropriate equipment (to include, but not restricted to, HPLC with fluorescent detector, GC/MS equipment, and atomic absorption spectrophotometer with high-temperature furnace) that cannot be provided by the Chinese side for the duration of the cooperative research study. For those equipments provided by the U.S., the property rights belong to the U.S. These discussions may also be continued in the future as the implementation plans and studies are defined.

C. The details on allocation of research costs and other expenses related to implementation of this Annex will be decided in future discussions between the two sides on the basis of equality, reciprocity, and mutual benefit. These details shall be embodied as amendments to this Annex.

D. Both sides will share the data acquired and the results of the data analyzed.

#### IV. DESIGNATION OF PROJECT LEADERS

The Project Leaders designated at this stage for the United States are:

##### A. Health Effects of Air Pollution from Coal Combustion

Dr. Vilma R. Hunt  
Deputy Assistant Administrator  
for Health Research  
Office of Research and Development  
U.S. Environmental Protection Agency  
Washington, D.C. 20460

Dr. Gordon Hueter  
Director  
Health Effects Research Laboratory  
U.S. Environmental Protection Agency  
Research Triangle Park, North Carolina 27711

B. Health Effects of Drinking Water Contamination

Dr. Vilma R. Hunt  
Deputy Assistant Administrator  
for Health Research  
Office of Research and Development  
U.S. Environmental Protection Agency  
Washington, D.C. 20460

Dr. John Garner  
Director  
Health Effects Research Laboratory  
U.S. Environmental Protection Agency  
Cincinnati, Ohio 45268

C. Biological Accumulation of Environmental Pollutants

Dr. Vilma R. Hunt  
Deputy Assistant Administrator  
for Health Research  
Office of Research and Development  
U.S. Environmental Protection Agency  
Washington, D.C. 20460

Dr. Courtney Riordan  
Deputy Assistant Administrator for  
Monitoring and Technical Support  
Office of Research and Development  
U.S. Environmental Protection Agency  
Washington, D.C. 20460

The Project Leaders designated at this stage for China are:

A. Health Effects of Air Pollution from Coal Combustion

Mr. Bi Zhi-Xian  
Deputy Director  
Bureau of Industrial Health  
Ministry of Health  
Beijing, People's Republic of China

Mr. Cao Shou Ren  
Deputy Director of Environmental Health  
Institute of Hygiene  
Chinese Academy of Medical Sciences  
Beijing, People's Republic of China

B. Health Effects of Drinking Water Contamination

Mr. Bi Zhi-Xian  
Deputy Director  
Bureau of Industrial Health  
Ministry of Health  
Beijing, People's Republic of China

Mr. Chen Changjie  
Deputy Chief  
Division of Environmental Health  
Institute of Hygiene  
Chinese Academy of Medical Sciences  
Beijing, People's Republic of China

C. Biological Accumulation of Environmental Pollutants

Mr. Bi Zhi-Xian  
Deputy Director  
Bureau of Industrial Health  
Ministry of Health  
Beijing, People's Republic of China

Mr. Wong Zi Si  
Deputy Director  
Institute of Hygiene  
Chinese Academy of Medical Sciences  
Beijing, People's Republic of China

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OF THE STATE COUNCIL OF THE PEOPLE'S REPUBLIC OF CHINA FOR  
SCIENTIFIC AND TECHNICAL COOPERATION IN THE FIELD OF  
ENVIRONMENTAL PROTECTION

ANNEX 2

ENVIRONMENTAL POLLUTION CONTROL

I. GENERAL

This Annex presents selected study areas for cooperative research on environmental pollution control. A detailed joint proposal for each specific project will be approved by the Working Group. Joint proposals for each project will be prepared by the performing institution and/or scientists and the corresponding counterpart. The selected study areas below do not exclude other cooperative activities or projects which might be deemed desirable by the parties for inclusion under this Protocol.

II. ITEMS FOR COOPERATION

A. Control of fine particles from coal combustion:

1. The US side will provide information on baghouse. This would include theory of collection, range of application, efficiency of operation, and measurement techniques.
2. The Chinese side will provide information on Venturi particulate scrubbers in operation, and information on pilot plant experience with high-voltage electrostatic precipitators.

B. Control of Pollution from Fluidized Bed Combustors:

1. The Chinese side will provide assembly drawings for the 130 ton per hour fluidized bed combustor test units and information on combustion including test data on coal combustion and actual performance data.



2. The US side will provide assembly drawings for the 136 ton per hour fluidized bed combustor from Foster Wheeler Company. This will include information on testing, operation, and sulfur removal.

C. Other Pollution Control Techniques:

1. The US side will provide information regarding regenerable scrubber technology for the control of  $SO_x$ .

2. The Chinese side will provide information on pilot plant use of the Wellman Lord process for removing sulfur from coal combustion.

3. The US hopes to be able to visit pollution control facilities in the People's Republic of China before July 1981. The Chinese side will give active consideration. The detailed arrangements will be determined by the US and China Working Group through correspondence.

III. DESIGNATION OF PROJECT LEADERS

The Project Leaders designated at this stage for the United States are:

A. Control of Fine Particles from Coal Combustion

Dr. Steven R. Reznick  
Deputy Assistant Administrator for Environmental  
Engineering and Technology (RD-681)  
Office of Research and Development  
U. S. Environmental Protection Agency  
Washington, D. C. 20460

B. Control of Pollution from Fluidized Bed Combustors

Dr. Steven R. Reznick  
Deputy Assistant Administrator for Environmental  
Engineering and Technology (RD-681)  
Office of Research and Development  
U. S. Environmental Protection Agency  
Washington, D. C. 20460

C. Other Pollution Control Techniques

Dr. Steven R. Reznick  
Deputy Assistant Administrator for Environmental  
Engineering and Technology (RD-681)  
Office of Research and Development  
U. S. Environmental Protection Agency  
Washington, D. C. 20460

The Project Leaders designated at this stage for China are:

A. Control of Fine Particles from Coal Combustion

Mr. Chen Guo Qu  
Engineer  
Institute of Thermal Engineering  
Ministry of Electric Power  
Beijing, People's Republic of China

B. Control of Pollution from Fluidized Bed Combustors

General Bureau of Electric Power  
First Ministry of Machine Building  
Beijing, People's Republic of China

C. Other Pollution Control Techniques

Mr. Xu Zheng Zhong  
Engineer  
Institute of Thermal Engineering  
Ministry of Electric Power  
Beijing, People's Republic of China

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FOR SCIENTIFIC AND TECHNICAL COOPERATION IN THE  
FIELD OF ENVIRONMENTAL PROTECTION

ANNEX 3

ENVIRONMENTAL PROCESSES AND EFFECTS RESEARCH

I. GENERAL

This Annex presents selected study areas for cooperative research on environmental processes and effects research. A detailed joint proposal for each specific project will be approved by the Working Group. Joint proposals for each project will be prepared by the performing institution and/or scientists and the corresponding counterpart. The selected study areas below do not exclude other cooperative activities or projects which might be deemed desirable by the parties for inclusion under this Protocol.

II. ITEMS FOR COOPERATION

A. AQUATIC EFFECTS OF ENVIRONMENTAL POLLUTION.

1. The U.S. side will provide information on the methods and results of laboratory testing programs for determining the toxicity of pollutants (especially carcinogens) to aquatic life, methods will include static (P) bioassay, flow-through bioassay, and chronic bioassay techniques "for both marine and aquatic systems."

2. The Chinese side will provide information on its aquatic toxicity testing programs and on field studies of aquatic pollution.

3. The U.S. side will provide information on the use of models, microcosms, and field ecology studies to validate the significance of laboratory results.

4. The U.S. side will provide information on its approaches to the problem of establishing water quality criteria to protect aquatic life.

5. The U.S. side will provide information on biomonitoring and assessment techniques in which aquatic organisms are utilized to measure the buildup of contaminants in the environment, including its mussel watch program.

6. The U.S. side will send a delegation of experts to China in 1980 or 1981 to facilitate cooperative activities on environmental processes and effects research. This delegation will visit the Beijing Institute of Zoology, Chinese Academy of Sciences; the Institute of Atmospheric Physics, Chinese Academy of Sciences; the Institute of Environmental Chemistry, Chinese Academy of Sciences; the Institute of Hydrobiology, Chinese Academy of Sciences, Wuhan; the Institute of Oceanology, Chinese Academy of Sciences, Qingdao; the Beijing Municipal Institute for Environmental Protection Research; and other research Institutes as appropriate. This delegation will also make arrangements for subsequent visits of U.S. specialists or information exchanges with these facilities as appropriate. The U.S. side will pay the international travel costs and China will pay for the expenses (such as board, lodging, transportation and emergency medical services) incurred by the U.S. experts while they are in China, as allowed by Chinese laws and regulations.

7. The Chinese side will send a delegation of experts to the U.S. to visit the facilities of the U.S. Environmental Protection Agency, Gulf Breeze Environmental Research Laboratory, Narragansett Environmental Research Laboratory, Corvallis Environmental Research Laboratory, and other research institutions, as appropriate. The Chinese side will pay the international travel costs and the U.S. will pay for expenses (such as travel, lodging, board, and emergency medical expenses) incurred by the Chinese experts while they are in the United States, as allowed by U.S. laws and regulations.

8. In addition to information exchange, the exchange of delegations is aimed at exploring the opportunities for joint or parallel studies, e.g., the toxicology of common pollutants in fish, which are designed to extend and supplement the information base. These may include parallel studies of the same pollutants, using different aquatic species to extend the range of information of toxic effects; joint studies of different classes of chemicals using the same or similar aquatic species; and joint biomonitoring studies.

B. POLLUTION OF SOIL AND GROUND WATER.

1. The U.S. side will provide information on its studies of ground water pollution, including development of ground water transport models.

2. The Chinese side will provide information on studies of the contamination of soil, ground water, and food crops stemming from the use of municipal sewage for farmland irrigation.

3. The U.S. side will provide information on studies of contamination of soil by bacteria, metals, viruses and other pollutants stemming from use of soil systems for municipal waste disposal.

4. The U.S. side will provide techniques for the separation, identification, and determination of trace quantities of organic pollutants.

5. The U.S. delegation of experts to China will visit ground water research facilities in Beijing, and will make arrangements for subsequent working exchanges of experts or information exchanges as appropriate. The U.S. side will pay the international travel costs and China will pay for the expenses (such as board, lodging, transportation and emergency medical expenses) incurred by the U.S. experts while they are in China, as allowed by Chinese laws and regulations.

6. In 1981 the Chinese side will send a delegation of experts to visit the U.S. Environmental Protection Agency laboratories at Ada, Oklahoma and Athens, Georgia. The Chinese side will pay the international travel costs and the U.S. will pay for expenses (such as transportation, board, lodging, and emergency medical expenses) incurred by the Chinese experts while they are in the United States, as allowed by U.S. laws and regulations.

C. MODELING OF AIR POLLUTANT TRANSPORT AND TRANSFORMATION.

1. The U.S. side will provide information on measures for the detection of short-, medium- and long-range air transport and local detection of horizontal flow fields for particulates, sulfur dioxide, oxidants, and aerosols, and on the establishment and use of models in developing control strategies.

2. The Chinese side will provide information on its studies of atmospheric transport and transformation.

3. The U.S. side will provide information on the techniques for characterization and modeling of the atmospheric transformation of contaminants (particulates, sulfur dioxide, polynuclear aromatic hydrocarbons, and oxidants, particularly chemical oxidants).

4. In 1980 or 1981, the U.S. delegation of experts to China will visit the Institute of Atmospheric Physics, Chinese Academy of Sciences, Beijing and other appropriate research facilities and will make arrangements for subsequent working exchanges or information exchanges as appropriate. The U.S. side will pay the international travel costs and China will pay for the expenses (such as board, lodging, transportation and emergency medical services) incurred by the U.S. experts while they are in China, as allowed by Chinese laws and regulations.

5. In 1980, a delegation of Chinese scientists will visit the U.S. Environmental Protection Agency's Environmental Research, Monitoring and Support Laboratories; several Department of Energy National Laboratories currently participating in the development of sulfate transport models for the Environmental Protection Agency; and the National Center for Atmospheric Research. The Chinese side will pay the international travel costs and the U.S. will pay for expenses (such as travel, lodging, board, and emergency medical services) incurred by the Chinese experts while they are in the United States, as allowed by U.S. laws and regulations.

#### D. MODELING OF WATER POLLUTION TRANSPORT.

1. The U.S. side will provide information on techniques for modeling pollutant transport and transformation in surface water, including the EXAM model, urban storm water models, and other hydrologic and sanitary engineering models.

2. The Chinese side will provide information on their experiences in modeling pollutant transport.

3. The U.S. delegation of experts to China will visit the Institute of Environmental Chemistry, the Chinese Academy of Sciences and other facilities conducting work on pollutant transport and behavior in surface water, and will

make arrangements for subsequent working exchanges or information exchanges as appropriate. The U.S. side will pay the international travel costs and China will pay for the expenses (such as board, lodging, transportation and emergency medical services) incurred by the U.S. experts while they are in China, as allowed by the Chinese laws and regulations.

4. The Chinese side will send a delegation of experts to visit the U.S. Environmental Protection Agency's Athens Environmental Research Laboratory and several academic institutions active in water pollution transport modeling. The Chinese side will pay the international travel costs and the U.S. will pay for expenses (such as travel, lodging, board and emergency medical services) incurred by the Chinese experts while they are in the United States, as allowed by U.S. laws and regulations.

### III. GENERAL PROVISIONS

The exchange of expert delegations as described in Sections II.A, B, C, and D of Annex 3 will be of equal size and duration.

### IV. DESIGNATION OF PROJECT LEADERS

The Project Leaders designated at this stage for the United States are:

#### A. Aquatic Effects of Environmental Pollution

Dr. Allan Hirsch  
Deputy Assistant Administrator for  
Environmental Processes and Effects Research  
Office of Research and Development  
U.S. Environmental Protection Agency  
Washington, D.C. 20460

#### B. Pollution of Soil and Ground Water

Dr. Allan Hirsch  
Deputy Assistant Administrator for  
Environmental Processes and Effects Research  
Office of Research and Development  
U.S. Environmental Protection Agency  
Washington, D.C. 20460

C. Modeling of Air Pollutant Transport and Transformation

Dr. Allan Hirsch  
Deputy Assistant Administrator for  
Environmental Processes and Effects Research  
Office of Research and Development  
U.S. Environmental Protection Agency  
Washington, D.C. 20460

D. Modeling of Water Pollution Transport

Dr. Allan Hirsch  
Deputy Assistant Administrator for  
Environmental Processes and Effects Research  
Office of Research and Development  
U.S. Environmental Protection Agency  
Washington, D.C. 20460

The Project Leaders designated at this stage for China are:

A. Aquatic Effects of Environmental Pollution

Mr. Li Xian Fa  
Deputy Director, Environmental Protection Institute  
Municipality of Beijing  
Beijing, People's Republic of China

Institute of Hydrobiology  
Chinese Academy of Sciences  
Wuhan, People's Republic of China

B. Pollution of Soil and Ground Water

Ms. Wu Peng Ming  
Deputy Director, Environmental Monitoring Station  
Beijing, People's Republic of China

C. Modeling of Air Pollutant Transport and Transformation

Ms. Liu Jing Yi  
Deputy Director  
Institute of Environmental Chemistry  
Chinese Academy of Sciences  
Beijing, People's Republic of China

D. Modeling of Water Pollution Transport

Ms. Liu Jing Yi  
Deputy Director  
Institute of Environmental Chemistry  
Chinese Academy of Sciences  
Beijing, People's Republic of China



AGREEMENT CONCERNING  
THREE ANNEXES OF THE PROTOCOL

An eight-man Chinese Environmental Delegation headed by Mr. Li Chaobo, Director, Office of Environmental Protection Leading Group, held discussions with an American delegation led by Douglas Costle, Administrator of the Environmental Protection Agency, and representatives of the Environmental Protection Agency, the Council on Environmental Quality, and the Department of the Interior, in Washington, D.C. during the period May 12-14, 1980.

During the discussions agreement was reached on annexes regarding

- Environmental Health Research
- Environmental Pollution Control
- Environmental Processes and Effects Research

These annexes are hereby incorporated into the U.S.-PRC Environmental Protection Protocol. Agreement in principle was also reached on activities in the areas of

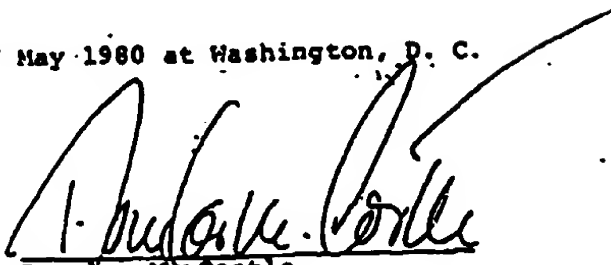
- Environmental Impact Assessment Studies
- Preservation of Nature

Discussions on the Environmental Impact Assessment Studies are continuing. Both sides are seeking respective governmental approval to complete agreement on the Preservation of Nature annex.

The two sides further agreed that they would continue to discuss the conditions and methods of financing future new cooperative projects on the basis of equality, reciprocity, and mutual benefit.

Signed this fourteenth day of May 1980 at Washington, D. C.

Li Chaobo  
Director, Office of  
Environmental Protection  
Leading Group  
People's Republic of China

  
Douglas M. Costle  
Administrator, Environmental  
Protection Agency  
United States of America

李 超 伯

## ANNEX 4

### TO THE U.S. PRC PROTOCOL FOR SCIENTIFIC AND TECHNICAL COOPERATION IN THE FIELD OF ENVIRONMENTAL PROTECTION

#### ENVIRONMENTAL MANAGEMENT ISSUES

##### I. GENERAL

This annex presents selected study areas for cooperative research on environmental management. A detailed joint proposal for each specific project will be approved by the working group. The principles of cooperation and division of expenses for this annex will follow the provisions stipulated in Annex IV. Joint proposals for each project will be prepared by the participating institutions and scientists of both sides. The selected study areas below do not exclude other cooperative activities or projects which might be deemed desirable by the parties for inclusion under this annex.

##### II. STUDY AREAS

###### A. Study on Environmental Management

This project envisions cooperative research between the National Environmental Protection Agency of China and the Environmental Protection Agency of the United States. The initial term of the project is three years.

The two sides will cooperate on a range of issues relating to environmental management including: the formulation of environmental standards; methodologies in environmental planning and assessment (including cost benefit analysis, risk assessment, and risk management); the management of the safety of toxic chemicals; the relation between environmental and economic policies; and the prediction of mid-term and long-term environmental quality. In addition, topics of mutual interest relating to legal and organizational issues will also be included in this research area. The mechanisms for these activities will include exchange of information, books, articles, unpublished papers, experts, the conduct of workshops, and related activities.

###### B. Study of the Impact of the Environment on Climate Change

This project envisions cooperative research between the National Environmental Protection Agency of China and other Chinese institutions it designates, and the Environmental Protection Agency of the United States and other American institutions it designates. The initial term of the project is three years.

After initial exchange of information and discussions concerning research relating to climate change, the parties will identify topics of mutual interest for joint research. Specific projects will be identified in discussions among experts of both countries. These joint research efforts would focus on issues relating to future trends in emissions of trace gases (specific gases to be determined) which could contribute to global warming. In addition, these joint efforts would consider the potential environmental effects associated with global warming (for example, the impact of global change on desertification).

The resulting studies could be used as joint China-U.S. contributions to upcoming international conferences on climate change.

### III. DESIGNATION OF PROJECT LEADERS

The Project Leader designated at this stage for the United States is:

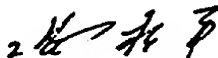
Richard D. Morgenstern  
Director  
Office of Policy Analysis  
Office of Policy, Planning and Evaluation

The Project Leader designated at this stage for China is:

Mme. Liang Sicui  
Division Chief  
International Cooperation  
National Environmental Protection Agency

### IV. APPROVALS

DATE:



Qu Geping  
Director  
National Environmental  
Protection Agency  
The People's Republic of China



Lee M. Thomas  
Administrator  
Environmental Protection  
Agency  
The United States of  
America